Learning Objectives - An Instructor's Guide

Introduction

This page provides an overview on the pedagogical use of "learning objectives" as an organizational tool, and is derived in part from a Center for Teaching presentation given by Dr. Darren Hoffmann (darren-hoffmann@uiowa.edu) at the University of Iowa (4 Feb., '13).

Learning objectives are clearly defined educational goals that are visible to both the student and the instructor through either the "purpose" of a teaching session (lecture, activity, multimedia, etc.) or the "outcome" (homework, essay, exam, etc.). It should then be obvious that these goals structure not only the presentation of material but also the assessment of students learning, and are useful in making a direct link between the two. A lack of this link is perhaps the most common complaint of successful students in a course ("What will be on the exam?") and a narrow link is the bane of struggling students ("I just don't get it.").

For example, try and answer this question:

- Describe the difference between knowledge and understanding?

1. Getting Motivated

In response to the above, we generally treat knowledge as something that is internalized (passive), whereas understanding tends to reflect the processing (active) of information. Understanding often relies on knowledge and is critical of its sources, while knowledge is entirely dependent upon the source of information and the method of absorption. Compare the following:

- Events in a timeline, ability to type quickly, word definitions in a foreign language
- How events in a timeline led to one another, why arm position affects typing speed, having a conversation in a foreign language using multiple verb conjugations

The former would probably appear as a topic on a course syllabus or as a question on an exam. However, the latter is probably the obvious goal of learning the subject in the first place even if left unmentioned. An instructor must realize that the second bullet is obvious only because it represents practical knowledge used in her/his profession or to reach professional status. You can imagine the same being true for a contract carpenter and the use of her/his tools or a concert pianist and the mode of her/his playing. The instructor's role in the learning process, therefore, should be to help the student to reach self-assigned, inspired, or curricula goals. Can you convince students who are only concerned with the first bullet (because of assessment) of the importance of reaching that goal directly/indirectly through the second bullet (presentation of course material)?

An instructor's job is then to show students:

1. Why it's important to understand the material (Teaching with questions)
2. How to understand the material (Instructional plan)
3. How to prove that they understand the material (Objectives, Assessment)

In order to successfully reach this "meta-goal," a significant amount of rethinking and reorganization of a course is necessary to bring the obvious out to your attention on paper. A lot of information on your syllabus may represent simple facts or concepts, but these are often related by underlying principles or method.

As an Exercise, take out a sample lecture:

- List 5 facts or subtopics
- Explain how those 5 facts are related (to each other and/or the topic)
- Identify an area of common misconception for this topic (do YOU also take anything for granted?)
- Write down the things that this knowledge and understanding will enable the student to DO

2. Working with Learning Objectives

Learning objectives are: a way to define understanding for yourself and your students, a statement that shows a student what they should be able to DO with their knowledge, and a statement that guides how students learn and how you, as an instructor, teach. They may come in two flavors:

General Objectives

This course aims to... (overarching theme)

Specific Objectives

1. Contains an action verb
2. Relates to an important course concept
3. Demonstrates learning/understanding
4. Is measurable (useful for writing exams or homework)
5. May constraint conditions/criteria that make to objective even more specific (time limit, accuracy level, quality, w/w/o notes, etc.)

To get started, analyze any learning objectives that you may have within your course content or write them down for the first time. Organize objectives by topic or expand a particular topic into several different objectives that may be compared or used separately. Can you classify your learning objectives in any way? Do they all have the same difficulty?

One system of categorizing levels of learning falls under the title of Bloom's Taxonomy (from "The Taxonomy of Educational Objectives: The Classification of Educational Goals," B. Bloom, 1956) and can be useful in measuring the level of understanding that you expect from students or to tailor their specific ability/training level. The system also provides an avenue for students to express their understanding in many different ways. In Bloom's model there are 3 domains of knowledge:

- **Cognitive Domain** (in order of increasing level of understanding)
  - **Remember**: Ability to recall facts or concepts
  - **Understand**: Ability to rephrase a concept into another mode of communication
  - **Apply**: Ability to use facts in a concrete situation
  - **Analyze**: Ability to break down material into parts, explain relationships, and interactions between those parts
  - **Evaluate**: Judge according to established criteria, verify the accuracy of a claim
  - **Create**: Produce new information, connect and combine information

- **Affective Domain**: Awareness and appreciation, perspective and empathy

- **Psychomotor Domain**: Skills requiring motor control (hand coordination, facial movement)

As another **Exercise**,

- Assess a set of learning objectives that you have identified within your course according to the level of understanding that they represent from the Cognitive Domain of Bloom's Taxonomy
- Choose a small subset of objectives and rewrite them according to the level of understanding (higher or lower) that you would like them to represent. A useful list of alternative vocabulary can be found on this supplemental page: Learning Objective Verbs
- Challenge yourself to find an application for the Affective Domain (current events, personal testimony, biography, etc.) in relation to the topic of your course. Some things to think about:
  - Has learning your discipline changed the way you see yourself?
  - Does the material in your course give insight into humanity?

- Are there exciting ways to include the Psychomotor Domain (physical specimen handling, demonstrations, field trip, community event, etc.) into your teaching? Recall that there has been some work implying that not everyone synthesize information in the same manner (Audio/Visual/Kinesthetic/etc. Learner)

**FAQ:**

How/when to write objectives?

- Can be reformulated after putting together a lecture (like the thesis of an essay)
- Can be used before to guide the construction of a lecture

How/when to release objectives to students?

1. At the beginning of the course - one big list of objectives (syllabus)
2. In each lecture/activity handout - purpose of the current session
3. At the conclusion of a unit - used as a study guide/review

What will happen when you start using learning objectives?

- Students will stop asking "will this be on the test?"
- You can write test questions faster
- Students never complain that exam questions were unexpected or unfair
- You can more precisely identify a student's area of misunderstanding by linking questions to objectives
- Students will start asking for objectives from other lecturers who do not provide them
- You can communicate your course goals more clearly with your colleagues

**3. Driving Curriculum Design**

Learning objectives are useful to instructors as a tool to help focus curriculum design tasks:

- **Sequencing**
  - The sequence of instruction in any course will have a great impact on how students understand the material.
  - Often, important relationships within the material emerge from objectives:
    - Do some objectives fit within others?
    - Are some objectives weightier than others or higher up the scale than others?
    - Do your TRUE objectives for your course reveal hidden possibilities for sequencing than you've ever considered when doing a "by-the-textbook" approach?
Classroom Resources

- Classroom resources often provide/restrict opportunities for particular levels of learning (ex. Textbooks are often best used in large courses with low-level learning objectives, primary sources are better for higher-level "deeper" objectives)
- What level are most of the objectives in your course?
- Do the classroom resources that you use match that desired level of understanding?

Assessment

- Since learning objectives are designed by considering your desired outcomes, learning objectives ARE the test
- Writing exams with good objectives is often more efficient
- The level of objectives should be reflected in the assessment tasks that students complete

Instructional Design

- Instructional activities can be used to build toward learning objectives (ex. try comparing your educational methods to the type of objectives or levels of understanding that you are able to reach in your students, describe the advantages and disadvantages of each method)
- Elaboration (connecting new information to existing knowledge)
- Transfer (applying a concept/skill to a new context)
- Difficulty (increasing and varied difficulty reflects the levels of understanding)

Course Evaluation

- Clear and simple with learning objectives
- Did my students demonstrate the ability to perform the objectives that I set out for them?
- Challenge to synthesize quality judgments based on your own personal reflections and the evaluations of students

Overall, having clearly identified learning objectives will make your course material easier to share and review with your colleagues. This is an especially useful system when working with a multidisciplinary approach.